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“EXERCISE” TREATMENT IN CASES OF INJURY TO THE KNEE-JOINT.

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IN a recent number of the *British Medical Journal*, in the epitome of “Current Medical Literature,” reference is made to an article in *L’Echo méd. du Nord*, by Martin, on “Gymnastic Treatment of the Knee-joint.”

Therein he describes a method of treating cases of knee-injury with effusion, by means of massage and exercise.

The perusal of the above has prompted me to subscribe this short note.

During the past five and a half years I have been following a similar method of treatment in recent knee-injuries, as well as old-standing cases of effusion into the knee-joint.

It was my privilege to see and learn this method in the various orthopædic and medical gymnastic clinics in Stockholm, and also at Professor Hoffa’s clinique, Berlin.

What I might term—with all due deference—the older method of treating these particular injuries, consisted in immobility of the joint by means of a splint, and the appli-

cation of blisters, or of absorbents such as Scott's dressing, lin. iodi, etc., until such time as the superabundant fluid was absorbed.

In treating a knee-injury by the method under discussion, the joint is kept at perfect rest certainly for a few days, and antiphlogistic treatment, such as the application of cold lead and opium lotion, is applied so long as bleeding from the injured ligaments is likely to recur, until in fact the joint no longer feels hot to the hand.

Then massage is begun—usually three or four days after the injury. At first gentle effleurage, or upward stroking, combined with “massage à friction,” is applied to the joint, and slight passive movement is performed.

The patient is allowed to walk, and to flex the knee as far as the passive movement has been conducted.

The massage is gradually increased in power from day to day, and the movements also progress from passive to active, and on to movements against resistance. During the interval between the manipulations the patient wears an elastic web bandage applied in the “figure of eight” manner, with just sufficient pressure to support or “brace” the knee, but without in any way interfering with the circulation. The patient is advised to exercise the knee commensurate with the amount of movement obtained at the joint.

In nearly all the cases I have treated I have used the “exercise machines” devised by Dr Zander of Stockholm, which possess undoubted advantages, one of the most important being that the range and power of the various exercises can be accurately adjusted.

Let us for a moment consider the natural means by which excessive fluid is removed from the knee-joint. This is performed by the lymphatics and veins, which derive their motive power from the contractions of the muscles, and the alternate flexing and extending of the knee-joint, constituting as it were a “vis a tergo.”

Now if immobility of the joint is persisted in just at the

time that the veins and lymphatics have extra work to do, the lymph-pumping function of the muscles normally acting on the joint is thrown into abeyance, and the influence of muscular contractions in aiding the onflow of the venous current is lost.

Further, organisation of the retained synovial effusion occurs, with the result that adhesions are formed in the joint.

The muscles also waste as a result of disuse, and, in my experience, the quadriceps extensor is especially affected in the case of athletes.

As a matter of fact everything tends against a speedy recovery to fitness. Quite a different picture is presented by the “exercise” method.

The effect of massage on the joint is to express mechanically the redundant fluid into the lymph spaces and venules, thence into the proximal trunks.

Local stimulation of the circulation induces improved nutrition, thus accelerating the healing process in the injured portion of ligament; movement at the joint prevents the formation of adhesions, and active contraction of the muscles prevents wasting.

Furthermore, during this ambulatory treatment the patient is enabled to attend, more or less, to his or her daily duties.

In a word, one might describe the older method as “expectant,” the newer as “aggressive.”

That the interval existing between the accident and complete recovery is most considerably lessened there is no doubt whatever, and I hope I shall not be considered to exaggerate if I say the cure is effected in days instead of weeks as heretofore.

Martin in his paper states that if there is much effusion he evacuates the joint by puncture. I have not found it necessary to resort to aspiration, powerful “effleurage” having resulted in the dispersal of fluid in such cases.

Since adopting these measures I have treated 151 cases of knee-injury, with varying degrees of synovial effusion. Of this

number 88 cases—roughly 70 per cent.—have been the result of football accidents.

The most frequent injury by far is tearing of the internal lateral ligament.

I hope later to prepare a further article, wherein I propose to deal with the results of this treatment in detail, not only in the case of the knee but in the various other joints.

Finally, if I may recapitulate, the main advantages of this mode of treatment are:—

1. A more rapid dispersal of the effused synovial fluid.
2. The prevention of adhesions in and about the joint.
3. Material diminution of muscular wasting.
4. The ability of the patient to be up and about during treatment.

